REMARKS

Claims 48, 52 and 55-57 are canceled; claims 43-47, 49-51, 53 and 54 are amended; new claims 61-65 are added; and claims 43-47, 49-51, 53, 54 and 58-65 are pending in the application.

The Examiner objects to the claims, and requests that the term "region" be replaced with the term "layer". Without admission as to the propriety of the Examiner's objections, Applicant has replaced the term "region" with the term "layer" throughout, and accordingly requests withdrawal of the Examiner's objections to the claims.

Claims 43-47, 49-51, 53, 54 and 58-60 stand rejected over Summerfelt, either alone or in combination with Sone. Applicant has amended claim 43, from which the other claims depend, and believes that such amendment places the claims in condition for allowance.

Amended claim 43 recites a capacitor construction having a perovskite-type dielectric material over a first capacitor electrode, with the perovskite-type dielectric material being recited to have a pair of layers against one another and differing in crystallinity relative to one another. The claim further recites that the perovskite-type material comprises barium, strontium, titanium, and oxygen throughout both the first and second layers.

Claim 43 is believed allowable over the cited references for at least the reason that the references do not suggest or disclose all of the recited features of claim 43.

Referring initially to Summerfelt, such does not disclose or suggest the claim 43 recited perovskite-type dielectric material having two layers against one another which both comprise barium, strontium, titanium and oxygen, and yet which differ in crystallinity relative to one another. Instead, Summerfelt discloses two layers differing in chemical composition relative to one another (with one of the layers being referred to as

strontium titanate and the other of the layers being referred to as barium strontium titanate), and further does not discuss if the layers differ in crystallinity relative to one another. The Examiner's other cited reference of Sone, like Summerfelt, does not disclose or suggest a perovskite-type dielectric material comprising two layers against one another which both comprise barium, strontium, titanium and oxygen, and yet which differ in an amount of crystallinity relative to one another.

As neither of the Examiner's cited references suggests or discloses the claim 43 recited feature of a perovskite-type material comprising two layers against one another which both comprise barium, strontium, titanium and oxygen, and yet which differ in crystallinity relative to one another, it is inconceivable that the references could, in any combination, suggest such recited feature of claim 43. Amended claim 43 is therefore believed allowable over the cited references, and Applicant requests formal allowance of such claim.

The amendment to claim 43 is supported at, for example, originally-filed claim 52, as well as paragraphs 22 and 27 of the originally-filed application, and therefore does not comprise "new matter".

Claims 44-47, 49-51, 53, 54 and 58-60 depend from claim 43, and are therefore allowable for at least the reasons discussed above regarding claim 43. Applicant therefore requests formal allowance of such dependent claims in the Examiner's next Action.

New claims 61-65 are added. Such new claims are believed allowable over the cited references for at least the reason that the claims recite perovskite-type dielectric materials comprising two layers against one another, with the two layers having different crystallinity relative to one another while comprising various recited commonalities of composition. The subject matter of claims 61-65 is supported by the originally-filed

application at, for example, paragraphs 21, 22 and 27 of the originally-filed application, and therefore does not comprise "new matter".

Respectfully submitted,

Dated: 2/3/03

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Application Serial No. 10/086,942
Filing Date ..... March 1, 2002
Inventor ..... Cem Basceri
Assignee ..... Micron Technology, Inc.
Group Art Unit 2813
Examiner ..... Y.Huynh
Attorney's Docket No. MI22-1951
Title: Capacitor Constructions Comprising Perovskite-Type Dielectric Materials

VERSION WITH MARKINGS TO SHOW CHANGES MADE ACCOMPANYING RESPONSE TO NOVEMBER 4, 2002 OFFICE ACTION

In the Claims

The claims have been amended as follows. Underlines indicate insertions and ~~strikeouts~~ indicate deletions.

Cancel claims 48, 52 and 55-57.

43. (Amended) A capacitor construction, comprising:

a first capacitor electrode;

a perovskite-type dielectric material over the first capacitor electrode, the perovskite-type dielectric material ~~having~~ comprising a first ~~region~~ layer proximate the first electrode and a second ~~region~~ layer against the first layer and further from the first electrode than the first ~~region~~ layer, said second ~~region~~ layer having a different amount of crystallinity than the first ~~region~~ layer; the perovskite-type material comprising barium, strontium, titanium and oxygen throughout both the first and second layers; and

a second capacitor electrode over the perovskite-type dielectric material.

44. (Amended) The capacitor construction of claim 43 wherein the first ~~region~~ layer comprises a thickness of from about 10Å to about 50Å; and the second ~~region~~ layer comprises a thickness of from about 50Å to about 500Å.

45. (Amended) The capacitor construction of claim 43 wherein the first ~~region~~ layer has less crystallinity than the second ~~region~~ layer.

46. (Amended) The capacitor construction of claim 43 wherein the first ~~region~~ layer is substantially amorphous and the second ~~region~~ layer is substantially crystalline.

47. (Amended) The capacitor construction of claim 43 wherein the perovskite-type material comprises a third ~~region~~ layer proximate the second capacitor electrode, wherein the second ~~region~~ layer is between the first and third ~~regions~~ layers, and wherein the third ~~region~~ layer has an amount of crystallinity that is about the same as the first ~~region~~ layer.

49. (Amended) The capacitor construction of claim 47 wherein the first ~~region~~ layer comprises a thickness of from about 10Å to about 50Å; the second ~~region~~ layer comprises a thickness of from about 50Å to about 500Å; and the third ~~region~~ layer comprises a thickness of from about 10Å to about 50Å.

50. (Amended) The capacitor construction of claim 43 wherein the perovskite-type material has a different chemical composition in the second ~~region~~ layer than in the first ~~region~~ layer.

51. (Amended) The capacitor construction of claim 43 wherein the perovskite-type material has the same chemical composition in the first and second ~~regions~~ layers.

53. (Amended) The capacitor construction of claim 43 wherein the perovskite-type material consists essentially of barium, strontium, titanium and oxygen throughout first and second ~~regions~~ layers.

54. (Amended) The capacitor construction of claim 43 wherein the perovskite-type material consists of barium, strontium, titanium and oxygen throughout the first and second ~~regions~~ layers.

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